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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/205,056	12/03/1998	JEAN-PIERRE DATH	F-722	9184

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EXAMINER
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GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/205,056

Applicant(s)

DATH ET AL.

Examiner

Walter D. Griffin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 15-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0109060 in view of Eberly, Jr. et al. (3,506,400).

Applicants are claiming a process for the production of propylene from an olefinic feedstock containing at least one olefin of C<sub>4</sub> or greater. The process comprises contacting an olefin feedstock with an MFI catalyst as defined in applicants' claim 15.

The reference of EP 0109060 discloses a process for the production of propylene from an olefinic feed containing 4 to 12 carbon atoms. See abstract, lines 1 and 2. EP 0109060 teaches that the olefinic feed is contacted with a ZSM-5 or silicalites. See page 1, lines 30 and 31. The ZSM-5 has a  $\text{SiO}_2/\text{Al}_2\text{O}_3$  molar ratio of greater than or equal to 350. See page 1, lines 31 and 32. The reference teaches process conditions including a temperature of  $400^\circ$  to  $600^\circ\text{C}$ , a space velocity of 5 to 200 kg/hr, and a pressure of 1.5 to 7.5 atm. See page 1, lines 31-35 and page 2, lines 7 and 8.

The reference of EP 0109060 succeeds at disclosing a process for the production of propylene from an olefin feed in the presence of a catalyst with components corresponding to those claimed by applicants (i.e., ZSM-5 or silicalite type). The reference's disclosure of ZSM-5 and silicalite encompasses applicants' claimed MFI structure because such compositions possess MFI structure by definition.

It is noted that the EP reference does not disclose applicants' catalyst method of making limitations.

The Eberly reference discloses a process for treating a zeolite by steaming followed by contacting with a complexing agent. The treatment removes alumina from the gross structure of the zeolite thereby increasing the silicon/aluminum ratio of the zeolite. The mechanism for this aluminum removal must be the same as claimed since the disclosed treating steps are the same as the claimed treating steps. The resulting zeolites may be used as catalysts. (See abstract; col. 2, lines 20-46; and col. 3, line 63 through col. 4, line 20.)

Since the EP reference does not restrict the mechanism by which the ZSM-5 (crystalline silicate) is produced, it would have been obvious to one having ordinary skill in the art at the

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time the invention was made to select steaming and complexing as a method to obtain the final silica/alumina ratio disclosed by the EP reference because Eberly illustrates that such steaming and complexing steps are known and conventional for producing desired silica/alumina ratios. The cited art supports the conclusion that applicants' catalyst modification steps are known and therefore not a patentable distinction over the teachings of the EP reference.

It is noted that the reference is silent about the relative percentages of propylene in the product effluent. However, applicants' claimed propylene percentage would naturally be produced because the same feed subjected to the same process conditions/catalyst would accomplish similar conversion percentage.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 15-22 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 6,646,175. Although the conflicting claims are not identical, they are not patentably distinct from each other because

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each set of claims is drawn to cracking an olefin containing feed to produce lighter olefins utilizing the same catalyst. The claims differ by the composition of the feed. However, it would have been obvious to one having ordinary skill in the art to have utilized any olefin-containing stream because of the chemical similarities between olefin-containing feeds.

Claims 15-22 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,646,176. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to cracking an olefin containing feed to produce lighter olefins utilizing the same catalyst. The sets of claims differ by certain process conditions. However, these conditions would have been obvious to one having ordinary skill in the art because the same hydrocarbon products are produced.

Claims 15-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 09/206218. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to cracking an olefin-containing feed to produce lighter olefins utilizing the same catalyst. The claims in the present application do not specify that the catalyst stability is increased but the catalyst in each set of claims is pretreated by the same method. Therefore, the catalyst in the claims of the present application must also have increased stability.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 15-22 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,713,658. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to cracking an olefin-containing feed to produce lighter olefins utilizing the same catalyst. The sets of claims differ by certain process conditions. However, these conditions would have been obvious to one having ordinary skill in the art because the same hydrocarbon products are produced.

Claims 1-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 17-20 and 38-44 of copending Application No. 09/206216 in view of Eberly, Jr. et al. (3,506,400).

The claims in 09/206216 do not include the catalyst treatment steps and differ from the present claims by the composition of the feed and process conditions.

The Eberly reference discloses a process for treating a zeolite by steaming followed by contacting with a complexing agent. The treatment removes alumina from the gross structure of the zeolite thereby increasing the silicon/aluminum ratio of the zeolite. The mechanism for this aluminum removal must be the same as claimed since the disclosed treating steps are the same as the claimed treating steps. The resulting zeolites may be used as catalysts. (See abstract; col. 2, lines 20-46; and col. 3, line 63 through col. 4, line 20.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the claims in 09/206216 by including the catalyst treatment steps of Eberly because Eberly illustrates that such steaming and complexing steps are known and conventional for producing desired silica/alumina ratios.

It also would have been obvious to one having ordinary skill in the art to have utilized any olefin-containing stream because of the chemical similarities between olefin-containing feeds. It also would have been obvious to one having ordinary skill in the art to have utilized conditions that result in effective cracking

This is a provisional obviousness-type double patenting rejection.

### *Response to Arguments*

The argument that the Eberly reference does not involve a treatment for the removal of amorphous alumina from the pores of a crystalline silicate framework is not persuasive. In the process of Eberly, alumina is removed from the zeolite crystal structure with the resulting amorphous alumina being removed from the crystalline zeolite structure by extraction. See column 1, lines 33-48. The examiner asserts that this dealumination mechanism is identical to the mechanism in the claimed process and that Appellant has not distinguished the steps of Eberly from those claimed.

Regarding the argument that Eberly does not disclose the claimed high silicon/aluminum ratios, the examiner asserts that Eberly teaches a broad range of silicon/aluminum ratios including zeolites in which virtually all of the alumina tetrahedra have been removed. This necessarily discloses very high silicon/aluminum ratios. Therefore, the examiner maintains that



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appellant's argument that Eberly does not disclose the claimed high silicon/aluminum ratios is without basis.

The argument that Eberly does not disclose an MFI-type zeolite is not persuasive because the process is not applicable only to the specifically identified zeolite but is applicable to essentially any zeolite. Therefore, the examiner maintains that one having ordinary skill in the art would expect the process of Eberly to effectively increase the silicon/aluminum ratio of an MFI-type zeolite.

The argument that the examiner's basis for combining the EP 0109060 references and the Eberly reference is improper is not persuasive because the examiner's reason for combining comes from the disclosure in Eberly that the resulting zeolite will have higher stability.

The argument that the EP 0109060 reference does not disclose a process carried out to provide a propylene yield of from 30 to 50% based on the olefin content of the feedstock is not persuasive because various examples disclose a C3 yield of greater than 30%. See Example 24 and others.

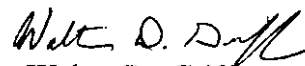
### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is (571) 272-1447. The examiner can normally be reached on Monday-Friday 6:30 to 4:00; alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Walter D. Griffin  
Primary Examiner  
Art Unit 1764

WG  
June 7, 2004